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EXAMINER

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ART UNIT	PAPER NUMBER
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2189

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/544,054

Applicant(s)

YONA ET AL.

Examiner

Christopher E. Lee

Art Unit

2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 30 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-29 and 31-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 05 November 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Receipt is acknowledged of the Amendment filed on 5th of November, 2002. Claims 1-12 and 14-38 have been amended; no claims has been canceled; and no claims has been newly added. Currently, claims 1-38 are pending in this application.

Claim Objections

2. Claims 31, 35 and 36 objected to because of the following informalities:

In the claim 31, the claim recites the limitation “such that the cards...data to each other” on line 6, which is illogical because the pre-mentioned limitation (lines 3-4) claims the sub-buses are used for a communication between groups of the cards, which means at least one of the cards of one of the groups should directly and/or indirectly transmit to at least one of the cards of one of the other groups for the communication between groups of the cards. Accordingly, this limitation in the claim is ignored by the examiner for the purpose of the claim rejection. Appropriate correction is required.

In the claims 35 and 36, the claims recite the limitation “the cards of the different...with each other” on lines 1-2 in the claim 35 and the limitation “the cards of the different...of backplane sub-buses” on lines 1-2 in the claim 36 respectively, which are illogical because the pre-mentioned limitation (lines 3-4 of the claim 31) claims the sub-buses are used for a communication between groups of the cards, which means at least one of the cards of one of the groups should directly and/or indirectly transmit to at least one of the cards of one of the other groups for the communication between groups of the cards. Accordingly, these limitations in those claims are ignored by the examiner for the purpose of the claim rejection. Therefore, these claims are also objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Prince et al. [USPN 5,734,656].

Referring to claim 1, Prince et al. disclose a modular switch (network hub 200 of Fig. 2), comprising: a plurality of backplane sub-buses (cell slots in Fig. 7; i.e. time dimension multiplexing buses of ATM switching backplane bus; See col. 7, lines 33-37); a plurality of cards (LAN modules 201-204 and ATM module 206 of Fig. 2) which are each allocated one or more of said backplane sub-buses (See col. 12, lines 36-40); and a controller (master control processor[MCP] 430 of Fig. 4) which dynamically allocates said backplane sub-buses to said plurality of cards, based on bandwidth needs of said cards (See col. 12, lines 32-35 and col. 13, lines 41-46).

Referring to claim 2, Prince et al. disclose said switch according to claim 1, wherein a bandwidth capacity (i.e. full bandwidth of ATM switching core 370 in Fig. 3) of substantially all said backplane sub-buses is less than said sum of a maximal transmission bandwidth capacity of said cards (See col. 5, lines 41-47 and col. 9, lines 4-8; i.e. wherein the fact that the full bandwidth of the ATM switch is thought of as being available to all devices attached to the network implies that the sum of bandwidth capacities of network devices is greater than the full bandwidth of the ATM switching core).

Referring to claim 3, Prince et al. disclose said switch according to claim 1, wherein said controller (MCP 430 of Fig. 4) is implemented by one (LAN module 401 of Fig. 4) of said cards (LAN modules 401,412 of Fig. 4; See col. 12, lines 46-49).

5. Claims 13-14,16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al. [PCT WO 93/15464; cited by applicant].

Referring to claim 13, Porter et al. disclose a modular switch (backplane 20 with line switches in Fig 2), comprising: a plurality of backplane sub-buses ('N' switched lines of Fig 3; See page 7, lines 19-23 and page 14, lines 20-23); and a plurality of cards (boards; See page 1, lines 9-10 and page 3, lines 21+) which are configurable to listen to a variable number of said backplane sub-buses (See page 4, lines 2-9 and page 15, line 35 through page 16, line 2).

Referring to claim 14, Porter et al. disclose at least one of said plurality of cards listens to fewer than all the backplane sub-buses (See page 3, line 21 through page 4, line 6).

Referring to claim 16, Porter et al. disclose each of said cards is configured to listen (i.e. communicate) to a respective group (i.e. cluster) of peer cards (i.e. a group of cards which have a particular aspect of the operation). Refer to page 4, lines 2-6 and page 8, line 19.

Referring to claim 17, Porter et al. disclose said sub-buses to which each of said plurality of cards listens are said sub-buses to which said respective group of peer cards transmit (See page 4, lines 2-6; i.e. wherein the fact that board in a cluster communicates with other boards in the cluster implies that an 'N' channel (i.e. sub-buses) to which each of said plurality of boards (i.e. a group of boards in a cluster) listens (i.e. communicate) is said 'N' channel (i.e. sub-buses) to which said respective group of peer cards (i.e. said group of boards in said cluster) communicate (i.e. transmit)).

Referring to claim 18, Porter et al. disclose each card (i.e. board) listens to said cards which listen to it (i.e. because of communicating each other in a cluster of cards; See page 4, lines 2-6).

6. Claims 23-29 are rejected under 35 U.S.C. 102(b) as being anticipated by LaBerge [USPN 5,771,358].

Referring to claim 23, LaBerge discloses a method of allocating sub-buses (i.e. apportioning bus bandwidth; See col. 1, lines 6-8) to cards (bus requesters 26,28,30,32 of Fig. 1) of a switch (bus controller 24 of Fig. 1), comprising: determining bandwidth needs of each of said cards (See Fig. 3 and col. 5, lines 9-26); assigning each of said cards a bus demand value (weighting value) which is a function (See col. 3,

lines 35-36) of said bandwidth needs of said card and a current bandwidth allocated to said card (See Fig. 2-3 and col. 3, lines 45+); and allocating (i.e. apportioning) said sub-buses (i.e. bus bandwidth) to said cards (i.e. bus requesters) based on said bus demand values of said cards (See col. 3, lines 36-44 and col. 4, lines 21-28).

Referring to claims 24-26, LaBerge discloses said method comprises 1) receiving messages (i.e. address strobes) from said cards, 2) determining a measure of utilization (See Fig. 3-4) of said sub-buses currently allocated to said card, and 3) listening (i.e. monitoring) to said sub-buses currently allocated to said card (See col. 5, 61-63). Refer to col. 5, lines 38-63.

Referring to claims 27-28, LaBerge discloses assigning a bus demand value (i.e. weighting value) which is a function of 1) a bandwidth requirement of said card (See col. 5, lines 58-61), and 2) a static maximum requester bandwidth which must be allocated to said card (See col. 5, line 67 through col. 6, line 8).

Referring to claim 29, LaBerge discloses allocating sub-buses not currently allocated to a specific card as additional sub-buses to said cards with the highest bus demand values (See col.4, lines 30-32 and lines 37-46).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner

to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656].

Referring to claim 4, Prince et al. disclose said switch according to claim 3, wherein 1) said controller is implemented by one of said cards (See above claim 3 rejection.) and 2) said controller (MCP 430 of Fig. 4) may reside on any LAN or ATM module coupled to the switch fabric without having any affect on the functionality of the device (See col. 12, lines 49-53). It is unclear whether Prince et al. disclose one or more said cards have said controllers and one of said cards is selected dynamically. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included 1) said controllers in said two or more modules, and 2) said dynamic selection feature in said switch for the advantage of a fault tolerance capability based on said redundant controllers on said two or more modules.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of Bonomi et al. [USPN 5,838,681].

Referring to claim 5, Prince et al. disclose all the limitations of claim 5 except that do not teach said cards transmit messages which indicate their bandwidth needs to said controller. Bonomi et al. disclose a dynamic allocation of port bandwidth, including cards (adaptors 100 of Fig. 4) transmit messages (See col. 9, line 29) which indicate their bandwidth needs (i.e. an explicit request for bandwidth; See col. 9, line 25) to a controller (CPU 96 of Fig. 4). Refer to col. 9, lines 24-30. Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said dynamic allocation of port bandwidth, as disclosed by Bonomi et al., in said switch, as disclosed by Prince et al. for the advantage of allowing a bandwidth allocation based on the particular type of data awaiting transfer (See col. 9, lines 16-24 of Bonomi et al.).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of Jaramillo et al. [USPN 6,016,528].

Referring to claim 6, Prince et al. disclose all the limitations of claim 6 except that do not teach each of said cards in said switch has a priority value which indicates its entitlement to bandwidth. Jaramillo et al. disclose a priority arbitration system, wherein each of cards (device 0-5 in Fig. 3) has a priority value which indicates its entitlement to bandwidth (See col. 5, lines 23-34) and a controller (PCI arbiter 508 of Fig. 5) allocates backplane (i.e. PCI bus) sub-buses (i.e. ownership of PCI bus cycles) based on said priority values (i.e. device priorities) of said cards (PCI agents 501-507 of Fig. 5). See col. 5, lines 35+. Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said priority arbitration system, as disclosed by Jaramillo et al., in said controller of said switch, as disclosed by Prince et al. for the advantage of providing predictable latency and guaranteed access for said cards coupled to said backplane sub-buses, and providing an arbitration process which is much more flexible with regard to allocating bus bandwidth (See col. 8, lines 38-42 from Jaramillo et al.).

12. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of Applicant's Admitted Prior Art (hereinafter AAPA).

Referring to claims 7-8, Prince et al. disclose all the limitations of claims 7-8 except that do not disclose 1) all said backplane sub-buses have said same bandwidth capacity, and 2) said plurality of backplane sub-buses comprise at least two sub-buses with different bandwidths. However, AAPA states all backplane sub-buses (i.e. cell slots) in a switch (i.e. modular switch) have a same bandwidth capacity (See page 1, lines 16-18 of AAPA), and said plurality of backplane sub-buses (i.e. cell slots) in a switch (i.e. modular switch) comprise at least two sub-buses with different bandwidths (i.e. some large bus portions and other smaller bus portions; See page 1, lines 20-21 of AAPA).

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of Shima et al. [US 2001/0043700 A1].

Referring to claim 9, Prince et al. disclose all the limitations of claims 9 except that do not disclose said controller confiscates one or more sub-buses from one or more of cards when said one or more sub-buses are more needed by one or more other cards. Shima et al. disclose a bandwidth allocation method (See Fig. 8), wherein a controller (peripheral device 230 of Fig. 2) confiscates one or more sub-buses (i.e. bandwidth) from one or more of cards (devices in multimedia network 100 of Fig. 1) when said one or more sub-buses are more needed by one or more other cards (See paragraph [0045], lines 1-7 on page 4). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have applied said bandwidth allocation method, as disclosed by Shima et al., to said controller of said switch, as disclosed by Prince et al. for the advantage of providing for dynamic reallocation of said bandwidth (See paragraph [0045], lines 13-14 on page 4 of Shima et al.).

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of Shima et al. [US 2001/0043700 A1] as applied to claim 9 above, and further in view of Nakano et al. [USPN 6,400,819 B1].

Referring to claim 10, Prince et al., as modified by Shima et al, disclose all the limitations of claims 10 including said bandwidth release stage, whereafter said controller allocates a confiscated sub-bus to a card (See paragraph [0045], lines 8-13 on page 4 of Shima et al.) except that do not disclose said allocation should be processed after receiving confirmation from said card from which said sub-bus was confiscated that said sub-bus was freed from its allocation. Nakano et al. disclose a bandwidth release module (See Fig. 17) , wherein a sub-bus (i.e. bandwidth) releasing stage includes a receiving confirmation (box 1704; wait for acknowledgement packet) from a card (i.e. release requestor) from which said sub-bus was confiscated that said sub-bus was freed from its allocation (See col. 13, lines 53-65). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was

made to have included said bandwidth release module, as disclosed by Nakano et al., in said controller of said switch, as disclosed by Prince et al. in view of Shima et al., for the advantage of providing an interface for accepting said bandwidth release with said receiving confirmation (See col. 14, lines 5-6 and Fig. 17 of Nakano et al.) before said dynamic reallocation of said bandwidth (See paragraph [0045], lines 13-14 on page 4 of Shima et al.).

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of LaBerge [USPN 5,771,358].

Referring to claim 11, Prince et al. disclose all the limitations of claim 11 except that do not disclose said controller calculates, for each of said cards, a bus demand value which represents an entitlement and need of said card to receive a sub-bus. LaBerge disclose a method for apportioning computer bus bandwidth, wherein a controller (bus controller 24 of Fig. 1) calculates, for each of said cards (bus requesters 26,28,30,32 of Fig. 1), a bus demand value (i.e. weighting value) which represents an entitlement and need of said card to receive a sub-bus (See col. 3, lines 33-36), and said controller allocates free sub-buses which are not allocated to said cards with the highest bus demand values (See col.4, lines 30-32 and lines 37-40). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have applied said bandwidth allocation method, as disclosed by LaBerge, to said controller of said switch, as disclosed by Prince et al. for the advantage of apportioning said bandwidth based on said bus demand value enables higher bandwidth cards to continue to operate at a relatively high bandwidth when said bus is saturated (See col. 6, lines 19-21 of LaBerge).

16. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of LaBerge [USPN 5,771,358].

Referring to claim 15, Porter et al. disclose all the limitations of claim 15 except that do not teach a controller which dynamically changes said sub-buses to which each card listens. LaBerge discloses a controller (bus controller 24 of Fig. 1) which dynamically changes (See col. 2, lines 23-29) said sub-buses

to which each card listens (See col. 5, lines 9+). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said dynamic embodiment of said controller, as disclosed by LaBerge, in said modular switch, as disclosed by Porter et al. for the advantage of enabling higher bandwidth cards to continue to operate at a relatively high bandwidth when said backplane sub-bus is saturated (See col. 6, lines 19-21 of LaBerge).

17. Claim 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant].

Referring to claim 19, Porter et al. disclose all the limitations of claim 19 except that do not teach at least one card listens to fewer than all said cards that listen to it. The examiner takes Official Notice that said configuration (i.e. few-to-many work group environment) is well known in the art of work group environment setting with access privileges in network. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize said at least one card listens to fewer than all said cards that listen to it via said work group environment setting with access privileges since it would have allowed for greater security in said work group.

18. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of Fan et al. [USPN 6,219,706 B1].

Referring to claims 20-21, Porter et al. disclose all the limitations of claims 20-21 except that do not teach 1) said peer group of one or more cards changes as a function of time, and 2) said peer groups are reduced in size during high security times. Fan et al. disclose a firewall (i.e. access control system), wherein a group of cards (i.e. particular users; See col.8, line 20) changes as a function of time (See col.8, lines 19-21 and col. 9, lines 27-28), and said peer groups are reduced in size during high security times (See col.8, lines 21-24; i.e. wherein the fact that certain users cannot communicate outside the local area network during non-business hours implies that said group including said certain users (i.e. peer group) is reduced in size during non-business hours (i.e. high security times)). Therefore, it would have been

obvious one of ordinary skill in the art at the time the invention was made to have included said access control system, as disclosed by Fan et al., in said modular switch, as disclosed by Porter et al. for the advantage of protecting a local area network using said modular switch from all uninvited sessions initiated externally (See col. 8, lines 13-15 of Fan et al.).

19. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of Ha-Duong [USPN 5,768,270].

Referring to claim 22, Porter et al. disclose all the limitations of claim 22 except that do not teach a filter which passes to said card only data from said sub-buses to which said card listens. Ha-Duong discloses an ATM switch, wherein a filter for at least one of said cards which passes to said card only data from said sub-buses to which said card listens (See col. 6, lines 17-20; i.e. wherein the fact that a filter handles an input line of a concentrator in order to eliminate ATM cells which are not destined for its group of outputs implies that said filter for input line of concentrator (which is ultimately connected to at least one of said cards) passes to said card only ATM cells (i.e. data) from two-way lines (i.e. said sub-buses) to its group of outputs (i.e. to which said card listens)). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said filter in said ATM switch, as disclosed by Ha-Duong, in said modular switch, as disclosed by Porter et al. for the advantage of outputting relevant ATM cells to said card (i.e. concentrator) (See col. 7, lines 4-5 of Ha-Duong).

20. Claims 31-33 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of LaBerge [USPN 5,771,358].

Referring to claim 31, Porter et al. disclose a modular switch (backplane 20 with line switches in Fig 2), comprising: a plurality of slots 21 (Fig. 2) for a plurality of cards (boards; See page 1, lines 9-10 and page 3, lines 21+); a plurality of backplane sub-buses (bus lines 1-96 of Fig 4; See page 14, lines 20-23) which are used for communication between groups of said cards (See page 4, lines 2-6); and at least one controller (switching circuits 26 and central processing unit 27 of Fig. 2, as combined) which is

configurable to divide said cards into different numbers of groups (See Fig. 1; Refer to page 14, line 22 through page 15, line 12 and page 15, line 28 through page 16, line 2).

Porter et al. do not disclose said at least one controller is further configurable to allocate said sub-buses to said cards based on bus demand values of said cards. LaBerge discloses a system for apportioning computer bus bandwidth, wherein at least one controller (bus controller 24 of Fig. 1) is configurable to allocate (i.e. apportioning) said sub-buses (i.e. bus bandwidth) to said cards (i.e. bus requesters) based on bus demand values of said cards (See col. 3, lines 36-44 and col. 4, lines 21-28). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have applied said bandwidth allocation method, as disclosed by LaBerge, to said modular switch, as disclosed by Porter et al. for the advantage of apportioning said bandwidth based on said bus demand value enables higher bandwidth cards to continue to operate at a relatively high bandwidth when said bus is saturated (See col. 6, lines 19-21 of LaBerge).

Referring to claim 32, Porter et al. said at least one controller is configurable to divide said cards into any number of groups between one and said number of cards (See page 4, lines 2-6 and page 15, line 35 through page 16, line 2; wherein the fact that the invention gives massive flexibility to a backplane and allows a wide number of different cluster configurations implies that switching circuits and processing unit (i.e. controller) is configurable to divide said slots into any number of groups between one and said number of slots).

Referring to claim 33, Porter et al., as modified by LaBerge, disclose all the limitations of claim 33 except that do not teach said number of groups are configured by a user. The Examiner takes Official Notice that said configuration by said user is well known in the art of backplane bus configuration. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize said switch of Porter et al. can be reconfigured by a user since Porter et al. state 1) in page 7, lines 21-22 that a switch data database can be provided to connect said switch, 2) in page 8, line

19 that the invention provides a reconfigurable backplane, and 3) in page 15, lines 10-12 that said reconfigured condition remains unchanged until modification is desired in order to solve the problems of pre-configuration by a manufacturer or an installer (i.e. configuration is not done by a user; See pages 2 and 3), and also since it would have allowed for greater flexibility to said backplane being customized, re-configured by said user.

Referring to claims 35 and 36, Porter et al. , as modified by LaBerge, disclose all the limitations of the claims 35 and 36. See the above claim rejection of the claim 31.

Referring to claim 37, Porter et al. disclose a box (i.e. a computer backplane; See Fig. 2 and title) having a plurality of slots (slots 21 of Fig. 2) in which said cards (i.e. cards in said slots) are located. Porter et al., as modified by LaBerge, do not disclose wherein said cards of at least one group are not located in adjacent slots. The Examiner takes Official Notice that said cards of one group are not located in adjacent slots (i.e. all said cards are inserted into non-adjacent slots) is well known in the art of backplane bus configuration with a technology of programmatic switching circuitry. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize said cards of one group are not located in adjacent slots since it would have allowed for greater flexibility to said cards being physically located at any slot in said box.

21. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of LaBerge [USPN 5,771,358] as applied to claims 31-33 and 35-37 above, and further in view of Applicant's Admitted Prior Art (hereinafter AAPA).

Referring to claim 34, Porter et al. disclose said switch according to claim 31, wherein said at least one controller divides said cards into a number of groups. Porter et al., as modified by LaBerge, do not disclose said number of groups equal to a number of types of cards included in said plurality of cards. AAPA states it is desired to form separate connections using different protocols (i.e. different types of communication cards) without signal conversion by creating separate networks which are not

interconnected (See page 2, lines 6-9; i.e., wherein in fact that said different types of communications cards forms said separate networks without said signal conversion implies that said number of separate networks (i.e. number of groups) equal to said different types of communications cards (i.e. number of types of cards) included in said plurality of communications cards (i.e. said plurality of cards)).

Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have applied said grouping method, as disclosed by AAPA, to said switch, as disclosed by Porter et al., as modified by LaBerge, for the advantage of Ethernet and ATM can be interconnected without signal conversions (See AAPA, page 2, lines 7-8).

22. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of LaBerge [USPN 5,771,358] as applied to claims 31-33 and 35-37 above, and further in view of Riley [USPN 5,875,351].

Referring to claim 38, Porter et al., as modified by LaBerge, disclose all the limitations of claim 38 except that do not teach only one card writes to a sub-bus at any single time. Riley discloses a distributed DMA architecture, wherein only one card (network card 120 of Fig. 2) writes to a sub-bus (PCI bus 112 of Fig. 2) at any single time (See Fig. 8 and col. 19, lines 19-30). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said distributed DMA architecture, as disclosed by Riley, in said switch, as disclosed by Porter et al., as modified by LaBerge, for the advantage of individual DMA channels can be distributed among said cards requiring DMA transfers, thereby supporting DMA on said sub-bus without requiring any change to existing software (See col. 4, line 65 through col. 5, line 2 of Riley).

Allowable Subject Matter

23. Claims 12 and 30 are allowed.

24. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 12 and 30, the limitations of those claims are deemed allowable over the prior art of record as the prior art fails to teach or suggest that said controller confiscates sub-buses from cards whose bus demand value without said confiscated sub-buses is lower than said bus demand value of a different card after said confiscated sub-buses are transferred to it.

Response to Arguments

25. Applicant's arguments filed on 5th of November, 2002 with respect to claims 1-11 and 13-29 have been fully considered but they are not persuasive.

*In response to applicant argument with respect to "Prince does not disclose each of the limitations of amended claim 1. For example, Prince does not disclose a plurality of backplane sub-buses, as recited in independent claim.... Thus, it is respectfully submitted that Prince does not disclose each of the limitations of independent claim 1" on page 8, line 24 through page 9, line 15, and "However, like Prince, Porter is directed to a single physical bus. Therefore, Porter does not disclose "a plurality of backplane sub-buses" as recited in independent claim 13" on page 9, line 25 through page 10, line 2 in the Amendment, the Examiner respectfully disagrees. Contrary to the Applicant's statement, Prince et al. and Porter et al. teach a plurality of backplane sub-buses (i.e., plurality of cell slots by TDM buses of ATM switching backplane bus and 'N' switched lines; See Claim 1 and 13 Rejections - 35 USC § 102), wherein the technical term "sub-bus" is usually used by one of ordinary skill in the art of computer technology as an **allocated bandwidth of a total capacity of bus** for sharing the bus in order to maximize the bus performance through an efficient bus sharing technique. In addition, the Applicant states "the sub-buses are allocated to the cards using time domain multiplexing" in the specification, page 1, line 27. Furthermore, it is noted that the features upon which applicant relies (i.e., backplane subbuses, which are not a time-divisionally logical sets of subbus, but a plural sets of grouped parallel conductors) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26*

USPQ2d 1057 (Fed. Cir. 1993). The dependent claims of the independent claim 1 are all rejected. (See above *Claim Rejection*).

*In response to applicant argument with respect to "LaBerge is directed to a method which apportions bus bandwidth among bus requesters by assigning to each bus requester a bus bandwidth portion that is based on the bandwidth of the bus requester...Therefore, it is believed that LaBerge does not disclose each of the elements of independent claim 23" on page 10, lines 8-18 in the Amendment, the Examiner respectfully disagrees. In contrary, the Applicant states the subbus is considered as a divided bus bandwidth (See page 1, lines 12-15 and 17-18) in the background of the invention. Therefore, it's not necessary the subbus should be interpreted as a separately-identifiable sub-buses. Accordingly, it is obvious that the subbus could be regarded as a portion of full bandwidth of a bus in this specific case. The dependent claims of the independent claim 23 are all rejected. (See above *Claim Rejection*).*

26. Applicant's arguments with respect to claims 31-38 have been considered but are moot in view of the new ground(s) of rejection.

*In response to applicant argument with respect to "Independent claim 31 has been amended herein to include the limitation "wherein the at least one controller is further configurable to allocate the sub-buses to the cards based on the bus demand values of the cards." It is..." on the Amendment page 10, line 23 through page 11, line 9, the Examiner brought LaBerge references in the rejection for the limitations which are not provided by Porter et al. and all of the other art cited. (See above *Claim Rejection*).*

Conclusion

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Christopher E. Lee
Examiner
Art Unit 2189

cel/ *cel*
December 12, 2002

Sumati Lefkowitz
SUMATI LEFKOWITZ
PRIMARY EXAMINER